

Aviation News

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Helicopter Sprayers: Experimental use of the Bell Aircraft Corp. Model 47 helicopter, for crop-spraying and dusting near Yakima, Wash., may be followed by widespread use of the rotary-winged aircraft for similar pest control projects. The downdraft from the huge rotor is regarded as ideally suited for dusting and spraying projects, and the ability of the aircraft to hover over a given area until it is thoroughly treated is another unique asset of the helicopter in this work.

Unscheduled Carriers Fight Full Federal Control

Most agree with CAB tenets but oppose drastic definition and 10-trip limit.....Page 7

War Production Skills Disappear in Reconversion

Unit costs almost doubled since V-J Day; solutions sought by companies.....Page 15

Aeronca Challenges Piper Lead in Plane Production

Two-place *Champions* rolling out at 33-a-day rate; *Vandalia Chief* line hits a 5-a-day...Page 23

Vast Feeder Network Seen as Result of CAB Decisions

In prospect are 25,000 route miles in 42 states; also expect 25 new local carriers.....Page 28

For **EVERY** point where fire may start...



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THE AVIATION NEWS

Washington Observer



DIFFERENCE IN TECHNICAL LEVELS—German scientists brought by the AAF to Wright Field to carry on scientific work for the U. S. say they are keenest. It isn't that they object so strongly to working for the U. S., but they contend that their work in Germany was on a technical level so much above current development at Wright Field that no one underneath was able to understand them. Similarly, the German air pilots brought over by the unpropelled Me-323 is thoroughly convinced of the superiority of his aircraft to any American planes he has been permitted to see.

* * *

CAB AND SURPLUS—An unexpected aftermath of CAB's non-scheduled session may be a drop in sales of surplus aircraft to non-scheduled operators if the proposed accelerated exemption order goes through as written. The order would require CAB approval of loans to come from any Government agency. Operators have been buying surplus aircraft on credit, giving War Assets Administration a mortgage for the balance. These notes would have to be cleared with CAB which, according to qualified observers, is not set up to handle such a volume of business.

* * *

RESEARCH QUALIFICATIONS—Unspecified observations may use of the weather polar in the AAF's case for additional appropriateness for a super-development program for military aircraft in continuation of the old after-action system at an research center. Some of the development credit at Wright Field and other centers are competent in the subjects they direct. Too many, however, have been appointed solely because of seniority, over the heads of other capable

officers and civilian engineers who carry the real load. In the past, this usually has been remedied too often with the transfer of capable officers from research projects as soon as they had completed a "year of duty," to new assignments for which they were not particularly fitted. Observers see a quick transfer of assignment of most senior officers and long term assignments of capable officers—similar to necessary requirements to a functioning, efficient AAF development program with tangible results.

* * *

RUSSIAN POLAR EXPERIMENTS—Announcement of Russia's resumption of polar exploratory flights—made from its military interest—marks the long transpolar flight by a Russian single-engined plane in the middle thirties. It took off from near Leningrad and landed near San Francisco, making the loop, it was claimed, nonstop. Some time later, however, Navy intelligence officers discovered what they took to be proof that the Russians actually had landed for refueling at a secret, undisclosed Arctic air base.

* * *

BREWSTER'S QUIZ PUZZLES—Talk earlier this year in the Senate Committee Committee on investigation to determine the exact—say—to which political pressures have influenced CAB route awards has died down. The idea was proposed by Sen. Owen BREWSTER, prominent member of the Administration's armchair air policies. Up for election this year, Brewster's campaign activities will bring back to his home town during the brief intervals when he is in residence in Washington to set up his campaign office.



Small flying wing fighter built experimentally for the AAF by Northrop Aircraft Co. is designated XP-79. Drawing the plane's "feathers" and distinctive features are that the joint has proven to enable him to withstand 12 G's on pullouts, and that this is the first U. S.-built flying wing to be powered by jet engines—two Westinghouse 35-BS. The aircraft was designed as a regular fighter, carrying four machine guns.

HANGAR FLYING



THE WET LOAD

The first cargo carried by the *Constellation* was put aboard via a four-inch fire hose. It consisted of 8.8 tons of water. This doesn't sound like a very intelligent choice of payload, but under the circumstances it was.

When Lockheed engineers first took No. 61 (the test *Constellation*) into the air, they wanted to know how the ship reacted to shifts in its center of gravity. So they originated and installed a system of water ballast tanks. The interior of the cabin looked like a cross between a hardware store and an aquarium.



By merely turning various valves, engineers could shift a ton or two of load from here to there in flight. Much easier than lugging sandbags around, and a lot more accurate. And since flight test costs on the *Constellation* run to about \$62,000 an hour, the system more than paid for itself by speeding up the whole test program.

This rig, another example of the old Lockheed motto, proved to engineers that the *Constellation* is a reasonably stable plane. More so, in fact, than any other large transport

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AVIATION NEWS

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News at Deadline

AIA Supports Research

Already established Aeronautical Research Board will not act until the industry's official position on plans for a new, giant supersonic research center is explained letters to Dr. George W. Lewis, Director of Research, National Advisory Committee for Aeronautics, and Maj. Gen. Curtis LeMay, Director of AAF's Research & Development. The industry will support the program, the letters read, as long as it conforms to the nation's aeronautical research policy set forth last March, and raises no specific requirements established in the letter. Annex, the requirements.

Industry is to be responsible for development of aircraft power plants, and propellers, to be used when financially possible in non-Government facilities. "Industry staffed and operated by the Government must be made available to industry under same conditions as prevail in privately-operated facilities," industry's development funds in Government facilities must be withheld in accordance with industry's requirements." On the controversial question of concentration of aerospace, the industry recommends that strategic considerations and proximity to related facilities be taken into account.

International Survey

Postwar General Robert E. Hapgood and Second Assistant Postwar General Noel Sullivan will leave shortly for a world flight during which they will observe at first hand problems relating as a reduction of international postal rates. They will be accompanied by W. Edward Morris, Assistant Secretary of War for Air, Interio Secretary J. A. Ring, and Sen. Millard Tydings (D-D).

Northwest Buys 20's

Northwest Airlines announced last week an order for 10 Martin 202's at a cost of \$2,500,000, for use on the domestic routes. The order comes nine days after the company had put in an order for 40 Martin 202's at a cost of over \$3,000,000. [In story in Transport Section, this issue.] Philip Ferguson Corp. has received a \$100,000 order from Northwest for 10 Douglas C-47 transports, and brought to more than \$27,500,000 the total cost of three separate firms. Northwest Airlines has ordered since the first of the year.



Variable-pitch propeller designers are leading the "welcome" call awaiting them at the doors of their engineers of wings West Coast plant hiring persons to conduct development. The plane builders are employing carefully the earliest ones of buying undeveloped parts for their earliest immediate need. The payment of unit inquiries for use of propellers already calculated and now on the market.

James G. Ray, vice-president of Southwest Airlines, West Coast dealer note holder, doubts if his company or other feeder airlines will be able to obtain adequate flight equipment for from one to two years. In comparison with feeder companies now under development, the DC-3 equipment his company will use in route service is "years too old," he says.

Auto-Truck Aircraft Delivery has been established at Grand Central Air Terminal, Burbank, Cal., offering delivery service for planes from factory or hangar to a per-mile charge. All ships accepted for delivery are insured, loss only in transit weight, and are covered with tracking tape on some steps, boxes and panels as protection from sun and rain.

The 8-year-old infant NAA soon-worn speed mark by Maj. General Edward P. Doolittle was officially broken May 28 by Navy Cmdr. T. D. Drane in a record flight in a new Lockheed Neptunus P-IV patrol bomber. The flight was made in 5 hours 21 minutes, clipping better than 20 minutes off the previous record.

TWA is now using a C-47 Sky Line in Kansas City, Mo. The plane is being employed primarily for radio testing.

Four XB-47 bombers are under construction at the Goodyear-Columbus plant. The first completed is undergoing static tests and will be available for flight test shortly.

TWA is reported negotiating for four or five Nasdaqos' Nakomos transports for European Airlines, to which it is lending technical advice and assistance.

American Airlines representatives soliciting business for the company's new contract for five aircraft are quoting a new low rate of 11 cents per ton-mile for Los Angeles-New York shipments in 20,000-lb maximum loads. The Sikorsky, Cal., letter, wherein, and each lettering arm is intensely interested in developing air cargo expansion despite the present high cost for anything but premium shipments. Forty platoons of strawberries left the area for roads for the Los Angeles market, via Shelt Flying Tigers, Diamond, and American. It is this area that suggests tremendous promise of possible freight on the Santa Fe railroad, which expects to start air cargo service soon.

SIA, Swedish International Airlines, flew a DC-4 nonstop New York to Stockholm in 15 hours and 25 minutes, for what it claims is a new world record. With a capacity of 45, the ship carried two passengers, a scientific observer for Douglas, and engineer for the airline. A specially modified fuel tank in the fuselage carried 450 gallons of gasoline, bringing total fuel load to about 4,000 gallons.

AAF developed 12,000-pound converted polo-horse bomb is slated for testing this month, according to Brig. Gen. Lauren Crangle, Chief, Engineering Dept., Wright Field. Testing before the Mitchell Subcommittee in the Senate, Crangle declared to cover venturi a gauge on the degree to which it might be found possible to deflect the bomb. A 1,000-pound converted polo-horse dropped at 15,000 feet can be deflected 2,500 feet. Crangle reported because of its weight, the 12,000-pound bomb will not even approach this degree of deflection. He also reported that AAF is preparing 14 B-52's, with 3,700 hp engines, and can expect the first that production on the B-52, the largest bomber ever produced by the AAF, is scheduled to start in January. Initial outfit will go through eight flights during the next month.

James M. Lands probably will be sworn in this week as successor to L. W. White Page, Chairman of Civil Aeronautics Board.

INDUSTRY OBSERVER — 3

PASSENGER TRANSPORTATION

... just one of many uses

Anywhere, at any time, in almost any weather, the versatile Sikorsky S-51 helicopter carries passengers, on business or pleasure, swiftly and directly to their destination.

Leading the way into this newest and most exciting means of transportation, Sikorsky helicopters are now available for a wide range of passenger-carrying opportunities. Thread for executives, maintenance crews, medical or first-aid workers, or use for charter bus, taxi or personnel service—these are just a few among the many uses of the Sikorsky S-51.

SIKORSKY AIRCRAFT
SCHENECTADY, NEW YORK
ONE OF THE FOUR DIVISIONS OF SIKORSKY AIRCRAFT CORPORATION

Unscheduled Carriers Determined To Fight Full Federal Control

Most agree with CAB principles in recent decisions but oppose drastic definition and 10 trip monthly restriction.

By WILLIAM KROGER

While fully determined to continue their fight to escape full economic regulation, the non-scheduled operators to a surprising degree give approval to the principles set forth by CAB in its forthcoming actions on unscheduled services (AVIATION NEWS, June 10).

In the main, operators sympathize with CAB's new concern only with the situation dictating the drastic definition of non-scheduled operations, and not with the actual effect of the definition. There are four subdivisions that many operators were holding behind: permission set up originally solely for flood base operations.

By laying down a clear-cut policy as whom constitutes irregular operators (no certain number of flights a day or a week between given points), it is felt CAB has wiped out hypocrisy. But at the same time, operators are widespread that CAB has also wiped out the future of many smaller non-scheduled operators.

► **The Trip Are Issue**—Most industry opinion is centered on three aspects:

► CAB's definition, which was proposed July 1 last year.

► The proposed amended exemption order which would limit flights between two points to no more than 10 round trips a month.

► The Board's extremely unnecessary emphasis on the fact that non-scheduled operators are not exempt from compliance with labor legislation.

Operators seemed willing to accept the definition, but felt that the limitation of 10 trips would not permit non-scheduled services to continue safely as carriers. There must be other businesses, such as insurance, sales or service, to help carry the overhead.

With less than a month—until July 28—to submit to CAB com-

mands conformity to decision 83 of the National Labor Board, the sets monthly maximum flight hours at around 1,500, pay of \$1,000 plus annual \$300 increments up to a \$2,000 maximum, and hourly pay beginning at \$4 and graduated upward according to speeds of aircraft flown.

On the result of having to meet these rules, operators are divided. Some of the most experienced, however, declare this will not mean a great increase, unless flying hours—now generally between 50-60 a month—are upped considerably. It is pointed out, however, that a major accounting job is created for those operators now doing charter and instruction. Although a legal opinion has not been forthcoming, it is believed that for the purpose of calculating hours, the Board's interpretation of "trip" for the non-scheduled operator can be figured on a separate basis from charter flying.

Seeking a ray of hope in the situation, many operators feel that the Board in pronouncing the definition restricted that no new certificates would be granted to small applicants. They look askance with suspicion that the non-scheduled carriers were trying to blanket the country with the type of local service the Board has often said is undesirable. Under the Board's definition, non-scheduled carriers can no longer provide such widespread service. Something, they feel, will have to take place.

Texas Ruling Limits Functions of Air Firms

Competitors chartered in Texas to deal in airplanes, agents there for passenger or freight services in-state, interstate or international cannot be also chartered to conduct flying or auxiliary educational schools, according to a ruling of Atty. Gen. Grover Edwards.

The corporation involved in the opinion originally was chartered as a dealer in planes, authorized to operate aircraft for carrying passengers and freight, to buy and sell wholesale or retail aircraft engines, instruments and paraphernalia. It was



ELDON PLAQUE

Defendant of Eldon (Mo.) Aeropark, last week, was warned by the commissioners of the above plaque to the citizens of the little Missouri community, from the Personnel Armchair Council (Atkens photo).

also authorized to sell fuel and grease for airplane engines and maintain whatever aircraft necessary to conduct its business. Later the corporation sought to extend its charter by inserting the phrase "to conduct persons in flying and in the mechanics and maintenance of aircraft marine."

Such legislation, open to the public, would set up the corporation as an educational institution and create a dual purpose for it—the attorney general wrote.

First Ram Jet Flight Made in Navy Tests

Thunderbolt exhaust pipe cleaves air at 1,500 mph over New Jersey 3,600 h.p. developed

Official revelation of Navy Department enthusiasm for the ram jet method of aircraft propulsion focuses attention on the simplicity and great power of this new engine, leading to speculation concerning its future possibilities.

Navy last week announced the successful conclusion of the first stage of its investigation, a working model which is the result of collaboration between the Navy Bureau of Ordnance, Johns Hopkins University Applied Physics Laboratory and more than twenty industrial organizations and universities.

The model which is sort of a missile made its first successful flight on June 12, 1944, at Atlantic Beach, New Jersey, weighs only 70 lbs. but moves through the air at all altitudes up to 150,000 ft.

The ram jet engine is ideal for propelling guided missiles because of its tremendous power and extremely light weight and simplicity. Also, it is relatively inexpensive to build, making it economical for use as expendable weapons.

Launched Needed.—A disadvantage of the ram jet is the necessity for it to maintain a high speed before developing sufficient propulsive power. This problem has been solved in two ways by the use of



Nasal Engine. With no moving parts, and weighing at both ends, the new jet model flew successfully for the Navy weighing but 70 lbs. More work must study a model for flight (Navy photo).

rocket-powered launching mechanisms and through launching from a high-speed母机 (mother) plane.

The engine gets its name from the fact that its own intake rates in the air at sufficient force to move it. This makes that greater speed provides greater force and, therefore, greater power which results in more thrust.

Numerous organizations, private companies and both the Army and Navy are now of week of work at the application of the ram jet principle to larger engines and various forms of aircraft and missiles. One leader in the field at present is the Marquardt Aircraft Corp., Venice Calif. (AVIATION News, March 31) now at work on advanced ram jet engines for the Navy.

Jets in 1951

Pratt & Whitney division of United Aircraft Corp. will continue concentrating on propulsive engines for at least five years, believing that in that period, at least, jet propulsion, ram jet, and other new power devices will not supplant conventional power plants.

Pratt's attitude was reported last week by C. B. Allen, aviation editor, New York Herald Tribune, on the strength of interviews with Frederick J. Borchardt, United chairman, and H. M. Heuer, president. (For other news on jet, see Production.)



"*Flying Sheeppipe*": Made from the tailpipe of a P-47, this working model of a ram jet engine is the first ever flown. It was developed by the Navy's Bureau of Ordnance, the Applied Physics Laboratory of Johns Hopkins University, and 20 associated industrial organizations. Application of the ram jet principle to jets or achieving better results for high-speed, high-altitude flight than jet, or in allied forms of propulsion. (Navy photo)

Navy Funds Slashed By Senate Committee

Over the protest of Naval officers, the Senate Appropriations Committee last week sustained House action in cutting back Bureau of Aeronautics fund for research and development procurement from the \$300,000,000 recommended by the Bureau of the Budget to \$100,000,000.

Vice Admiral A. W. Radford, Deputy Chief of Naval Operations, and Rear Admiral H. B. Saltonstall, Chief of Baker, objected that the \$75,000,000 cuts would necessitate a reduction in Baker plane procurement from 1,200 planes to 1,000, a reduction of 25 per cent.

Baker's 1,358-plane program consisted of 834 fighters, 390 dive bombers, 24 observation scouts, 67 land-based patrol bombers, and 26 seaplane patrol bombers.

In reporting out the 1947 fiscal year Navy Department appropriation bill last week, Senate Appropriations Committee made only minor change in House-agreed allocations for Baker, it added \$35,000,000 for procurement of synthetic aviation training devices. That raised Baker's total coming-year appropriation from \$300,000,000 approved by the House to \$312,000,000.

An passed by the House and recommended by Senate committee, the bill provides Baker with \$100,000,000 for research and development, including \$35,000,000 for experimental plane types and \$12,000,000 for engine developments; \$36,000,000 for operations and maintenance, and \$33,000,000 for instruments and equipment, and \$10,000,000 for aircraft procurement.

The 1947 fiscal allocation will cut only drastically setback Baker from its war time mix, but will also depress him from the dominant position within the Naval Establishment it held during the war years.

In a lead-off argument before Senate Appropriations Committee justifying a large 1947 fiscal year Baker appropriation than presented by the Bureau of the Budget (Budget allowed \$100,000,000, Baker asked around \$1,200,000,000), Baker argued emergent the relative strength of Baker within the naval establishment during the war years with its great relative strength during the coming year.

The evidence is that Baker activities are being scaled back greatly in proportion to the overall esti-

mates and in Naval activities.

During the war, 49 per cent of all naval appropriations were devoted to naval aviation. In the 1945 fiscal year, naval aviation will receive about 31 per cent of the total Navy Department appropriation.

Navy appropriation will be an increase of \$16,000,000 over Baker's share in the neighborhood of \$10,000,000.

During the war, the 432,000 officers and men in naval aviation accounted for 46 per cent of the total personnel of the Navy. The planned naval aviation personnel force for the coming year, 36,000 officers and men, will amount to only around 18 per cent of the planned naval personnel strength of 300,000.

Senate Votes Switch In Aviation Control

A shake-up in committee has caused aviation legislation was approved by the Senate last week when it passed the LaFayette-McNary bill amending Congress by a 46 to 16 vote.

The bill would:

- Abolish the Senate Committee on Aviation, which now has jurisdiction over civil aerodynamics, and turn jurisdiction over civil aviation over to a new committee on Interstate and Foreign Committee.
- Merge the present committees on Military Affairs and Naval Affairs into a single Committee on the Armed Forces.

The proposed Committee on Interstate and Foreign Commerce would have jurisdiction over all forms of civil transport and communications, both domestic and foreign. Its membership would probably be drawn from the present

memberships of the committees on Commerce and Interstate Commerce.

Sen. Burton Wheeler (D. Mont.), now chairman of Senate Interstate, would take precedence over Sen. Harry Byrd (D. Va.), now chairman of Senate Committee, for chairmanship of the new Interstate and Foreign Committee Committee, because of his barbershop nature.

Sen. John Overton (D. La.), acting chairman of Senate Commerce, claims the blame of Sen. Byrd vigorously protested the bill's provision abolishing the committee which he is next in line to head permanently.

The bill is now subject to House approval. Senate approval came as a complete shock to numerous Washington observers who calculated that powerful senators, heading committees, would never permit legislation to go through abolishing their committee, and making a deep incision in their power.

Meat Committee Asks Air Engineers' Center

Plans of the National Advisory Committee for Aeronautics and the Army Air Forces for an Air Engineering Development Center "should be completed expeditiously," Senate's Mid-Way Investigating Committee recommends.

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FOUR-ENGINE FEEDER:

Estimated to be the first narrow-journal-engine plane of its size to fly, the British-built Miles Marathon prototype carried 25 passengers on 550-mile flights, 12 passengers and 125 lbs. of freight, or 500 miles. Although the engine is small (330 hp each), the use of four is designed to eliminate drag caused by the use of one engine on take-off, which is strongest in the two-engine aircraft. The Marathon can take off on three engines. The Marathon exemplifies a strong trend in the part of British designers to use four engines on all transports.

at the center, involving five high speed wind tunnels, would start in the third year.

The report, drawn up by the aviation subcommittee headed by Sen. Hugh Mitchell (D-Wash.), was critical of NACA and the armed services' management of the program and morale failed.

"German leadership in each important new phase of aerodynamics as yet pre-empted and guided researches in a direct reflection upon the quality and scope of our aeronautical research and development in the previous years," it asserted.

The armed services in the U.S. did not start aeronautical pre-emption until the Russians effectively drew on Great Britain by the Germans were first obtained for study, it was said.

A resolution included in the report showing (1) requests by the NACA and the armed services for aviation development funds between 1936 and 1941, and (2) allocations granted by the Budget and the Congress during the pre-war period, disclosed that the failure for adequate pre-war aeronautical development programs was not due to the refusal of Congress or the Budget Bureau to grant funds as popularly conceived but the failure of the agencies to seek the funds to finance adequate aeronautical research. The resolution stated that generally NACA and the armed services were granted the appropriations requested for aviation development by the Senate Committee on Appropriations.



CABIN BLOWER:

For better cabin circulation as its DC-4's while they are en route, Pan Am is installing special blowers with outlets in passenger and cargo compartments. Photo shows a workman placing a guard over the cage end of the blower.

Sen. Pat McCarran (D-Nev.) who introduced it, does not think the legislation is of sufficient importance to warrant a major Senate debate at this time since there is a heavy foreign policy element. In view of Brewster's strong opposition, McCarran may let the bill along to the Senate Committee on Foreign Relations.

Copiers Forced Landing Technique Details Studied

Helicopter engineers are studying details of the recent successful "dead stick" landing of a helicopter near Wright Field in a bid that it affirms their long-standing contention that autorotation, a free-wheeling action of rotating wings can permit a safe landing under full control following a helicopter engine failure.

The landing was made from \$390 ft by Captain Irvin C. Shimer of the AAF following engine failure due to compressor difficulties.

Although helicopter engineers contend that the autorotation feature renders helicopter engine failure merely a minor hazard rather than a serious danger in a fixed gear craft, they do concede that forward flying speed, a steep glide and competent piloting are prerequisites to autorotation landings.

Aerofore is a secondary product of the use of fully articulated blades, the latter necessary for forward movement of the helicopter.

The new CAR Part 96, however, mandates the acceptance of autorotation as a primary design feature by specifying it as a requirement for all licensed designs in Army and Navy requirements for the part four years.

Airlines to Use CAA Blind Landing System

Airlines will begin use of CAA's instrument landing system (known in wartime under the Army designation of RSI-51) next winter, CAA and the Air Transport Association jointly announced last week. The system is now being installed at 84 airports, which will bring total to 160 airports by next winter to 1955. The system, which is to be implemented starting this fall, is expected to change the way air transportation, Ground Control Approach which is based on radar, is superior to its own system, and presently is giving extensive tests to GCA at its Indianapolis experimental station.

Although the CAA system has been under development since the early thirties, there has been only one reported by an airline in operation to warrant a major Senate debate at this time since there is a heavy foreign policy element. In view of Brewster's strong opposition, McCarran may let the bill along to the Senate Committee on Foreign Relations.

Aks Separates Air Force

In a possible indication that AAF is seeking autonomy from the Defense Department, a Air Force General George E. Stratemeyer, commanding general of the Air Defense Command, last week told a New York audience that an autonomous air force is essential to national security. AAF officers had repeatedly asked an independent air force until the unification emergency began last Fall, at which time they swung over to support the Army's pre-activation stand.

Soviet Polar Flights

Making a wide 25,000-mile nonstop passage of ice conditions in Arctic waters, a Soviet plane piloted by M. Tikhon recently finished a three-week navigation survey. Longest single flight from the base at Dekhtiar Island covered 3,800 miles and

and back, penetrating to within 30 miles of Greenland. This non-stop flight took 18½ hours. In another long single hop, the plane went north from Disko Bay island into the area of the Central Polar Basin, covering 1,300 miles in about 16 hours. General areas surveyed were the Greenland, Baffin, Kara and Laptev seas and the high latitudes of the Arctic Ocean.

Lower Atlantic Fares Detailed by IATA

Meeting in New York June 3-8, 160 representatives of leading international air carriers at IATA's North Atlantic Trade Conference formally adopted resolution proposing substantial reductions in trans-Atlantic passenger fares, after determining bilateral clause factors of cost of service. (See table 1.)

Last fall, the administrative costs, seat plane and crew costs of trans-polar passengers in paying the new rates. Modification of considerable variance in proposed opening figures presented by the delegation, agreement finally ar-

Return →	Europe		New York		Washington	
	Present	Proposed	Present	Proposed	Present	Proposed
Amsterdam	\$80	4,642.00	\$300	847.00	\$400.00	1,477.00
Brussels	280	220.00	360	71.00	360.00	124.00
Copenhagen	390	277.00	465	88.00	465.00	148.00
Geneva	390	361.00	600	113.00	600.00	163.00
London	360	257.00	325	72.00	325.00	113.00
Madrid	410	387.00	410	98.00	410.00	139.00
Paris	560	323.00	572	107.00	572.00	211.00
Rome	560	309.00	572	116.00	572.00	211.00
Stockholm	350	301.00	324	100.00	324.00	102.00
Turku	450	319.00	450	104.00	450.00	137.00

ived at represent what AOA Representative States called "rates based on low estimated costs, rather than high or even in average of the presentations."

Qualified airline members present were John R. Shaver, AOA; V. G. Cradick, BOAC; W. L. Daburon, KLM; W. E. Cowles, PAA; T. Niles, KLM; G. R. McGuire, TCA; and E. G. Cockle, TWA. Non-voting members (prospective international members) were H. L. Lester, Air France; P. Beck, Northwest, Danish Airlines, and Gert Mandel, Norwegian Airlines.

The new fares would be phased in effect on June 25, provided that the appropriate governmental authorities approve them on or prior to that date. Otherwise the new rates will have to await the last of such approvals.

Significantly, the new proposals have been determined on estimated survival schedules by the end of this year, when it is expected that about 100 weekly flights (making available about 380 seats daily) will be scheduled by IATA members.

United States Submits Bill to Temp Board

The Senate Advisory Committee for Aviation last week was aligned with other government departments in opposition to the Mitchell bill's proposal to establish a temporary Air Policy Board to write out a national program for the management of air power during the peace-time years.

NAACA chairman, Dr. Jerome Hunsaker, filed with the Interstate Commerce Commission an NACA statement in support of the creation of American aeronautics regulation upon the termination of hostilities which prompted the proposal to establish a National Air Policy Board and not proceed at this time and, it is doubtful whether such a board could give the country needed assistance at this time."

The Senate subcommittee, headed by Sen. Hugh Mitchell (D-Wash.), considered hearings on the Air Policy Board proposal last week with testimony by Hunsaker and Brig. Gen. Lawrence Crossen, chief of the engineering division at Wright-Patterson.

After presenting the NACA opposition statement, Hunsaker subsequently took back-handed and suggested that it might be advisable to establish a temporary board, as proposed in the Mitchell bill, to determine what type of permanent set-up would be established to decide and administer air policy.

Crossen urged "immediate" approval by the Budget Bureau of AAF's proposal for a \$1,000,000,000 "engineering development center," the key function of which would be to develop aircraft costing from \$30,000-000 to \$40,000,000 each, capable of testing planes and missiles with speeds ranging from approximately 600 mph. to about 7,000 mph.

Airport-Bill Aid Clears Fleet Hurdle in Senate

Legislation amending the recently-enacted \$1,000,000,000 airport development bill so as to permit the building of large (between four and five acres) airports during the war year (Aviation News, May 20), was approved last week by the aviation subcommittee of Senate Select Committees on Communications and Post.

A compromise measure is being worked out in the Senate by Sen. Owen BREWSTER (D-Me.) who favors emphasis on small airport construction, and would approve building all the building of big airports for another year.

New Rocket Panel To Smooth Discords

Joint Army-Navy creation group will coordinate V-2 firing and in New Mexico

Formation of a joint Army-Navy-Civilian V-2 Rocket Panel points toward solution of the various intra-service differences over responsibility for scientific experiments with 25 captured V-2s brought to the country.

The panel is under the chairmanship of Dr. E. H. Krause, head of the Rocket Study Research Section, Naval Research Laboratory, Washington. Dr. G. R. Thompson represents the Army Air Forces, Air Ordnance Corps; Navy Bureau of Ordnance, Naval Research Laboratory, and universities universities.

Of almost equal significance as the formation of the panel, is a new procedure adopted under which future V-2s test fired for the first time will be thoroughly investigated in order to give readings of conditions in the upper atmosphere. **Agree On Policy.**—A broad policy has been agreed upon which will provide each of the groups an opportunity to plan and conduct its own individual experiments. By allocating a specific number of V-2s to each of the groups and by preparing a schedule of firings, approximately 100 rocket flights per year can now be made. The losses associated with the problems of V-2 control and have distributed the opportunities equitably.

The first fully instrumented V-2 launching is scheduled for June 27. This firing is a Naval Branch Laboratory project. Firings on July 9 and July 10 will be under the direc-

tion of the General Electric Co., working under contract with the Army Ordnance Department. On July 12 the firing will be under the direction of the Johns Hopkins Applied Research Laboratory, working under a Navy Department contract. The August 27 firing will be handled by the University of Michigan, which holds an AAF contract. The cycle will then be repeated during the three months the V-2s are in the atmosphere.

Each of these agencies will be in complete charge of their instrumentation of their individual rocket and will select, develop and install the particular equipment required for the test. An important function of the panel is to coordinate such instrumentation to insure that as space is wanted in each V-2 there will be ample room.

Firing at White Sands.—All flights will take place at the launching site at White Sands Proving Ground, New Mexico, where the captured V-2 rockets are being assembled. Two firms have been contracted to date. Both of these were previously to determine launching methods and to provide information on stability and control of the rocket in the air. The June 27 firing will be the first fully instrumented V-2 launching. The Germans were debriefed before their plans for such tests advanced beyond the preliminary stage.

The Naval Research Laboratory has prepared a special warhead, the exact shape and weight of the original, containing telemeter equipment to measure atmospheric air pressure and density, ultraviolet rays, ionizing rays and atmospheric density from the 120-mile altitude expected to be reached. Such single and complex instruments as Geiger counters, spectrographs, resonance thermometers, etc., are connected in a 22-channel telemetering instrument through which readings are ob-

tained on the ground by observers.

Mississippi.—Due to the 2,000 mph speed and 400° C temperature of the V-2 upon impact with the ground, it is necessary that all metal cases be after the landing. The more than 500 readings that are necessary must be obtained during the three months the V-2s are in the atmosphere.

for domestic airmail to \$1,900,000 will be sought by the airlines, which was deferred in December, 1946.

At present, American Air Express, City Airways, New York, Boston, Los Angeles, and San Francisco, have new feeder lines, and branch offices in 30 additional cities which will be served and are proposed. The new routes will operate between New York and Miami; between Chicago, New York, Chicago, Wichita, Kansas City, Omaha, St. Louis, and San Diego. Each of the new route will be stops at principal cities en route. The company will feature door-to-door delivery.

Slick Airways Hits Million-Mile Mark

Cargo carrier has contracts for transporting meat, magazines, newspapers, and fruits; new sales offices opened.

More than 2 million revenue ton-miles were flown by Slick Airways Inc., Curtis-Wright transports in the three months to June 3, the newest cargo company reported.

Beginning March 4 with a load of meat to Chicago from the organization's base in San Antonio, the company used four of its six freighters to fly 55,443 ton-miles in March, and to attain 258,426 in April, and eight to complete the total to 888,639 in May. The last airmail flight the first three days of June added 63,681 ton-miles. Total: 1,043,499.

Cargo included department store merchandise from Newark in the Midwest, Kansas City, and the West Coast; contraband from Chicago to Texas; Massachusetts goods down Detroit east and west; fruits and vegetables from California; and flowers from San Francisco to Midwest and eastern points, eschewing

points from Newark to the Midwest, berries from Texas north, and bananas from the east.

A sales office has been established in San Francisco. Others are in New York, Chicago, Boston, Detroit, Milwaukee, Los Angeles, Dallas, Fort Worth, Houston, and Birmingham, Tex. A northern flight line from Chicago to San Francisco via Denver was added to the transcontinental and north-south system. Pilot change or maintenance bases are at Newark, Chicago, Oklahoma City, Long Beach, Denver, San Francisco and San Antonio.

Pennsylvania Moves To Regulate Carriers

Proposed air commerce carriers and monopoly regulations for charter airlines have been adopted by the Pennsylvania Public Utility Commission.

Certificates of public convenience will be issued to both scheduled and chartered air carriers at a fee of \$16, and approval of incorporation as a public utility requires another \$16 fee.

Certificates showing that each craft is insured (A) for bodily injury to death of one person, \$2,000 multiplied by the number of passenger seats in the plane for any one accident, (B) loss or damage to property owned by others than the owner in any one accident \$5,000, and (C) cargo damage, appropriate to the type of property transported. To be insurance also must be held with the Commission. Other filing requirements are schedules, accident reports, tariffs schedules, accident reports, tariffs schedules, accident reports, tariffs

Charter service certificates are issued for 3-year periods only, so that such services can be regulated

PT Boats to Airport

Conversion of surplus PT boats to carry up to 100 passengers on round trip between Baltimore and Baltimore Airport is proposed by O. L. Bandy, president of Columbia Airlines, non-scheduled operator in Baltimore. The boats are being delivered to American Vought Corp. This firm has also operated several 140-R seaplane rescue boats which can be fitted up for 300 passengers. Another shuttle is contemplated between downtown and the Shore Park, with a return flight of sightseeing tours of the harbor and a ferry service across Chesapeake Bay between Havre de Grace Field, near Baltimore, and Ocean City, are possibilities.

on a basis "sufficiently flexible to permit the unhampered development of flying," the Commissioners said. All interstate air traffic is affected by the regulation.

Oklahoma Regulation Is Attacked by Airlines

The proposed regulations being considered by the Corporation Commission for control of interstate air traffic are attacked with June 5 by major Oklahoma airlines.

After listening to service attorneys argue that existing regulations imposed by the CAB were sufficient, the Commissioners continued further hearings until July 18. Chairman Reed Bond and the proponent were referred to allow airline representatives additional time to study the proposed regulations.

The major airlines entered formal protest against all the proposed regulations and made specific attacks on individual sections. The attorneys maintained that portions of their business might be invalidated if interstate air transportation, air freight or passenger service between Tulsa and Oklahoma City, and between any two Oklahoma points.

Under the proposed air traffic controls, the Commission would require the airlines to provide insurance, or hold no cover less than \$100 per person or property in case of accident. The Board has proposed insurance coverage of \$1,000 for death or injury to any one person; \$10,000 per accident liability for any one accident; \$5,000 property damage; and up to \$1,000 for cargo loss.



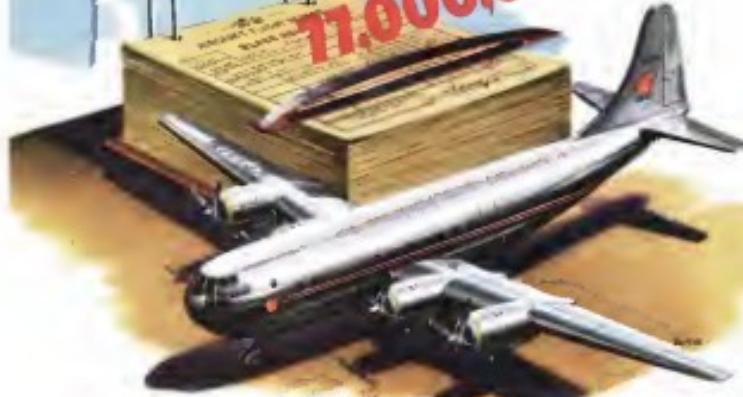
FOR A PHOTO FINISH

Meeting an urgent deadline, Teleline Inc. of Hollywood, Cal. chartered a Varney Airlines Freight Corp. C-47 to deliver this heavy road race track film machine, used in recording photo finishes, to the Puffin Derby race track of Boston.

This is the Record of.

CURTISS HOLLOW STEEL BLADES

11,000,000 HOURS



Since June 8, 1938, set a world's speed record of 398 mph at the National Air Races in 1952 using Hollow Steel Blades, this blade design has amassed a total of 77,000,000 flight hours. Only Curtiss can point to such a record, stemming from a production of more than 250,000 Hollow Steel Blades.

Blade research and development by Curtiss has brought to the aircraft industry new concepts of pro-

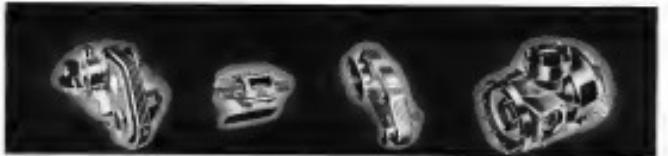
Consider These Outstanding Curtiss Blade Features:

- Abrasion resistance characteristics especially suitable for reverse thrust operations.
- Simple monolithic construction provides most efficient distribution of metal.
- Easy inspection throughout with conventional equipment.
- Available now to designs 10 to 10' P.P. feet in diameter.

peller weight, blade durability, and service life. Today steel has supplanted aluminum alloy and is the accepted standard for all higher horsepower applications.

Production of the first successful hollow steel blade is but one of the achievements of Curtiss propeller pioneering... automatic synchronization for greater passenger comfort, reversible propellers for shorter, smoother landings, anti-vibration for ease of maintenance, simplified selector control and full feathering propellers are all "firsts" by Curtiss.

CURTISS
ELECTRIC PROPELLERS



**what lesson can you learn
from a mighty**

Air Transport?



Perhaps the equipment you make for mass-produced aircraft transports, has the successful solution of the application of power demonstrated to these aircraft may offer a suggestion to you. Power is generated from the engine through an assembly of Power Units. This assembly drives a generator, then super-charger, hydraulic pump and other equipment.

Power from Power Units provides a positive means of applying this power exactly where it is needed.

These compact units can assume fixed or rotary motion or power demands from the operator. They are light in weight—compact in size to fit in a confined space envelope—and can perform continuously or at a predetermined time cycle. They can be driven connected to the power source—operated through a drive shaft—or powered by an integral motor.

Many manufacturers have found that Foote Bros. Power Units provide a meaningful solution to power transmission problems. Their use on the equipment you manufacture may mean a better product. Our engineers will gladly work with your designers.

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Better Power Transmission Through Better Units

A recently issued bulletin on Power Units giving complete engineering data on "packaged power" will be sent to request. Also available is a bulletin on Aircraft Quality Gears. Write for your copy today.



PRODUCTION

Wartime Production Skills Disappear During Reconversion

Unit costs almost doubled since V-J Day as general decline in manufacturing affects aircraft industry; solutions sought by companies.

The many outstanding advances achieved by the aircraft manufacturing industry during the war are rapidly disappearing as a result of reconversion to small quantity lot production. Reports from engineers indicate that unit costs have nearly doubled since V-J Day despite operating economies in production.

... except in lack of real quality production. Mass production's large economy is a major economic premise and if war-time fundamental law of work on the greatest possible scale during the war, made the... other factor, that created the extremely high figures of 96 aircraft per employee and the equally low surface cost of less than 15 per lb. Present estimates indicate that employee output has dropped to an average of less than 90 lbs and that surface costs have risen to \$20-30 per pound.

Process Control.—Processes have been extensively curtailed due to reduced production quantities. Many savings and savings are now realized from low stock to save the cost of expensive mobile date and fixtures, which pay for themselves in large quantity production. Considerable spot-welding, spot-welding and metal stitching have been replaced by simple riveting to provide economies in the purchase and maintenance of elaborate shop equipment. Many plastic assemblies

and the "own the war" psychology have completely disappeared, and the resulting let-down in the intensity of individual effort is evident. Job-enrichment has fallen rapidly from its wartime peak of nearly 40% surface production is around 10% or less thereby deposing the industry of individual sub-contractor's efficiency through specialization.

High precision of workers

training, which has been passed on to new and more junior workers contributing to high production has disappeared and with it has gone production efficiency.

Taking for new models, particularly commercial, is much less elaborate, resulting in greater arrest an individual skill at the bench. Fabrication operations have diminished by as much as 15% in some cases with resulting emphasis on assembly technique and fasteners-on-assembly operations.

While this shift towards the prob-

lem being returned to modified sheet-metal design is to the saving of small quantities.

Most departments have been re-arranged and consolidated where possible with resulting improvements in work flow patterns and increased variety of individual operations.

Rising labor and materials costs, increased numbers per aircraft period, shortening of new pattern and completion of individual workers' jobs have combined to double and triple the cost-per-unit of large aircraft.

General Cost Increases.—This is expressed by the general increase in aircraft costs associated with advanced design, which is accompanied by increasing complexities in aerodynamics, power plant and control equipment problems. There have multiplied research problems to the extent that the preparation of research in production employees is higher at present than at any previous time in aviation history, running as high as one research (engineering, experimental and developmental) worker for every two production workers.

To reduce these conditions, management must return to several old solutions with varied degrees of effectiveness. First, every attempt is being made to amplify detailed structural design so that fabrication times and costs may be reduced as far as safety and strength will allow. Fabrication processes are

(Continued on page 28)



'COVERED WAGON' RAFT:

Newest development of the AAP's Air Materiel Command experiments is air-sea rescue equipment at the 20-ton rubber life raft, which is named "Covered Wagon" because of its shape. Carried aboard aircraft operating over water, the raft is so constructed that it can support the full complement of 20 men if one side is punctured. It is inflated with carbon dioxide.

UNIQUE GENERATOR DRIVE



G-E AIRCRAFT GENERATORS

... RELIABLE POWER SOURCES FOR PLEASURE PLANE OR TRANSPORT



AC constant frequency GENERATORS

Light-weight, ac power systems, highly effective at high altitudes, are now made possible with G-E 400-cycle, constant-frequency generators. Capacities include 40 kva, 90/120 volts, 6000 rpm and 20 kva, 200/320 volts, 6000 rpm.

AC variable frequency GENERATORS

G-E makes two basic types of variable-frequency ac generators—a unit rated 300 amperes, 30 volts dc, (10 amperes, 300 volts ac) 400/600 rpm, and one rated 10 kva, 200/320 volts (400/600 cycle ac) 400/600 rpm.

Gas turbine

STARTER-GENERATORS
G-E also designs and builds gas-turbine starter-generators which deliver 600 amperes at 30 volts dc, 3200/3400 rpm. At a start, the unit develops 3500 lb pounds torque at 1500 rpm, 300 amperes, 25 volts.

Double-dares VIBRATION!

First

Isolate this intricate shaft-shaft (1) link as a cushion between engine and generator, absorbing out the transmission forces from an airplane's speed.

Second

Isolate this intricate friction coupling (2) after the main transmission, isolating the vibration which reaches the shaft-shaft, or isolating the shaft support bearings.

Big reason why G-E aircraft generators perform consistently well is the overall protection we give them against the destructive effects of engine vibration. Shielded against a hazard which can—and does—shake apart less carefully designed equipment, these generators provide a source of electric power you can always depend on. They require less maintenance. Their useful service life is above average. They add an extra margin of safety in aircraft operation.

Whether you want a single, low-output power source for a light plane, or a complex, high-output power system for a heavy, multi-engined ship, you'll be interested in the latest, "anti-vibration" features illustrated above.

Besides minimizing the transmission of small but continuous vibration to engine speed to the generator assembly, the "shock absorber" inner shaft acts as a flexible coupling between the alternator and engine. (Careful suspension of shaft by the Magnaflex method detects and eliminates those with bows, cracks, or scratches which might create harmful stresses.)

Together, the flexible shaft and the vibration dampers (located on its driving end), both exclusive G-E features, form a double-barrier against harmful vibration to the rotating alternator.

*Trade-mark reg. U.S. Pat. Off.

In addition to these primary safeguards, G-E aircraft generators are equipped with mounting flanges, forged of specially treated steel, to absorb pending engine vibration. Thanks to a unique contour design, the flange is able to overcome high fatigue and static stresses.

Electrically Sound

Compensated three-field windings in G-E aircraft generators reduce free air overheat and sparks concentration over the normal nameplate load range—a important factor in high-altitude operation. Moreover, by silver braiding the armature windings to the commutator and using plane insulation and Fones' wire throughout, we have raised the safe temperature rating for these generators—done it without increasing their size or weight.

Thousands of G-E aircraft generators of all types were used in the war under grueling service conditions. That they turned in above-average performance records is further evidence of G-E's ability to design and produce electrical systems and industrial components for aircraft applications. The valuable experience is offered to aircraft builders, naval builders, and operators who are continually forced to consult with G-E on any electrical problem. Apparatus Dept., General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Precision
AIRCRAFT GENERATORS

Firestone Announces the New SuperFlex

THE *First AND Only*
CONSISTING OF TIRES,



PREASSEMBLED UNITS FOR LIGHT PLANES
TUBES WHEELS, BRAKES AND STRUTS . . .

HERE'S good news for all who make or service light planes. Firestone pioneers again with the new SuperFlex Undercarriage, the first and only complete "packaged" undercarriage — tire, tube, wheel, brakes and struts pre-assembled at the Firestone factory and ready to install.

Manufacturers can save valuable weight, time, space, labor and money by using Firestone SuperFlex pre-assembled undercarriages. The landing load is absorbed by rubber displacement and air compression resulting from the upward movement of the wheel. Recoil is positively controlled by the use of friction material.

Elimination of many parts used in conventional landing gears permits a welcome reduction in weight. Low

oscillation rate control and damping characteristics provide excellent taxiing qualities. There is no possibility of the landing gear sticking. Extension is positive and certain. There are no telescoping tubes, no oil compartments, no packing glands.

Minimum overall section width and height make the Firestone SuperFlex landing gear ideal for retraction and permit lower center of gravity. Clean, compact design assures low drag in extended position.

Maintenance costs are remarkably low — service in less than one-hour intervals is unnecessary, and the entire unit replacement of tire, tube, wheel, brake and absorption unit is easily and quickly accomplished by the removal of a few bolts and nuts.

For the best in music, listen to the "Voice of Firestone"
every Monday evening, over N. E. C. network

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The NEWLY DESIGNED POTTER SEAT

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Available now to the industry is this revolutionary and improved aircraft seat which has received enthusiastic reception from contract and other transportation carriers. Adjustable in any position, the Potter seat is fully patented. Weight only 32 lbs. It is light, durable and extremely comfortable. Installation and removals can be made instantly. Seats are available either in single or double combinations in desired colors and fabrics.

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being numbered whenever possible so that individual operations may be reduced and each employee do more operations directly on the aircraft. Usage of stations has been centralized through amalgamation of plant and through consolidation of certain departments into the home plant. Knapsack is being held to a minimum commitment with potential agents. Divisions of specialized departments have been closed and a general plan to render every employee a direct productive employee is being pursued.

All of these problems are a direct result of curtailed military production, which immensely constitutes the greatest portion of business by the large companies and without which they fear they cannot long survive.

Conklin Will Recover 40 Beechcrafts for CAA

A contract with CAA for the reconditioning of 40 GDB-2 Beechcrafts, and the swapping for spare parts of 100 Beechcrafts has been awarded by E. J. Conklin Aircraft Corp., New Haven, Conn. The planes have been returned by the British, who obtained them as lend-lease, and will be used by CAA inspectors. The recondition cost will be approximately \$40,000. The planes were accepted by the company at the Norfolk Naval Air Station, and hauled on barges up the James River to the Conklin plant at Ryde Field.

Motor Firm Expands

Planning greatly expanded assembly in the Southwest, Continental Motor Corp. has undertaken construction of a new \$100,000 assembly and service plant at Dallas.

Under the direction of Bert Beauchamp, who has been in charge of the Garland, Tex., plant, the new facility will do final assembly on Continental engines for the Southwestern territory, as well as service and overhaul work.

Timex Makes Furniture

Timex Aircraft Corp., through a subsidiary, Timex Industries, Inc., has discontinued its activities to produce aluminum furniture. Under contract with Double Metal Furniture Manufacturing Co., of New York, the Los Angeles aircraft firm will turn out 75,000 units of furniture. This will include a desk-chair, large armchair, divan-chair and table.

Nickel Plate Propeller Promises Lower Cost

Experimental blade developed as by-product of research for Navy by Glendale firm.

A nickel-plated propeller under development in Glendale, Calif., shows promise of being one of the year's most important aviation achievements.

For the personal aircraft industry it carries the potential offering of a metal propeller which should cost no more than a wood propeller yet have twice the life and be virtually free from maintenance problems.

Result of War Work—Under the direction of the Naval Research Laboratory, Washington, D. C., Baus Engineering Corp. is operating an experimental electro-forming and electric-plating laboratory. During the war that laboratory developed many products which were used in the fields of radio, radar and machine tools. The experimenter is a by-product of this experimental work.

It is created by applying to a pre-formed blade core, which may be shaped from wood, laminates, aluminum, magnesium, or other light-weight materials, an electroplating of nickel of a thickness of accurately controlled thickness.

New Blade Test—An experimental blade, using as a core a standard wood blade, carries a nickel sheath of 0.010-in. thickness and now is undergoing preliminary tests by the Navy Department. Dr. J. M. Carter, chief of development for Baus, declares the sheath thickness can be increased materially and to any extent needed to provide necessary blade strength.

R. L. Lewis, president of Baus Engineering, reports that interest in the project already has been shown by several propeller manufacturers.

In addition, Baus has had a tentative contract offer for 10,000 propellers from U. S. Propellers, Inc., which supply variable pitch wood propellers to Beech Aircraft, among others. A representative of U. S. Propellers has visited his firm's interest, and says they hope to use CAA to begin type certification tests within two or three weeks.

A further indication of the interest the radial propeller has aroused comes from the Army which will test the propeller on the West Coast.



Nickel-Plated Prop. Dr. J. M. Carter, chief of development for Baus Engineering Corp., holds a core cut out of a nickel-plated blade to show the uniform thickness of the sheathing which encases the core completely from blade root to tip.

aluminum or steel propeller for a fraction of the cost of the forged blade.

Also, it offers a reduction of the manufacturing cost of the blade core, which may be a plain, smooth shape and will require neither varnishing nor metal capping of the leading edge.

The plating process can be controlled to give extra thickness to the leading edge of the finished blade. The plated blade may be balanced by casting of the surface, peening, and buffing will give a fine, dressed smoothness.

Curtiss-Wright to Continue Making Military Models

Taking cognizance of some of the experts regarding the future of the Curtiss-Wright Corp. that have appeared in the industry from time to time, President Guy W. Vaughan has decided at least one. That C-W will not continue making aircraft.

"We shall continue to manufacture military airplanes and engines and propellers and various types of aircraft," Mr. Vaughan declared. "What we are still considering at early whether we should continue to manufacture commercial airplanes. We have not yet come to a decision on this question."

C-W and subsidiaries, Mr. Vaughan says, has a backlog of \$65,000,000.

Taylor Turbine Spurs U.S. Jet Competition

American firm hopes to generate Rolls-Royce Nebula and Dérivé engines soon.

Licensing of a newly-formed U. S. firm to produce the British Rolls-Royce jet engine has added just one more competitor to an already over-crowded field in the opinion of industry representatives already engaged in jet engine work.

Pundits, rather than the four major aircraft manufacturers whose names have been cited recently in connection with present manufacturers to the announcement that the Taylor Turbine Corp. has been granted rights to produce in this country the Rolls-Royce and Dérivé engines.

Dennis U. S. Company—At present there are a dozen U. S. companies either in production or negotiating that point as jet engines. General Electric, Westinghouse, Pratt & Whitney, Wright Aeronautical and Allison are the largest. There are seven others potentially, at least, of equal importance: Northrop-Hendry, Messier Aircraft, Fredric Flader, Inc., De Laval Steam Turbine Co., Packard Motor Co. and G. M. Gearand, the Pasadena Calif. group engaged in developing jet (Aviation News, Aug. 13, 1945).

Of that lot, only Allison is in volume production, on the J-33 which powers the Lockheed P-80. But before the year is out, there should be others, as AAF has already let contracts for aircraft utilizing other types of jet engines.

This dual-explosion field now leaves Philip R. Taylor, a recognized engineer and production expert, and from the Fall of 1945 until Summer, 1946, vice-president and general manager of Wright Aeronautical Co. Taylor while still interested in finance, finance and credit, also stated that he will still be based in northern New Jersey, where there is a reservoir of skilled labor. Initially, the corporation will be financed with private funds, although a public stock issue is planned for next year, at which time Taylor expects to be in production on the Nasco and Dérivé types of Rolls-Royce engines.

Plan Army Test—Just as distinctly, Taylor states that "at least two American manufacturers (will) plan to new aircraft around the Rolls-Royce power plant which would be incapable to drag around existing or projected U. S. engine types. Test installations are planned in new Army and Navy

military aircraft types, with modifications of the British-made engines by Rolls-Royce to conform to Army and Navy specifications."

This is the statement that industry observers are studying with most interest. There are too many points involved, one, the alleged superiority of British jet, and the various and induced national pride.

The U. S. industry does not dispute the claim that the Ness and Dervish are the two most powerful jet engines now in production, primarily because the J-39 is the only other engine that has reached that stage. But even that statement must be qualified.

The Ness, with its thrust of 1,800 lbs. and the Dervish, developing better than 3,000 lbs., no doubt are the most powerful as a test block. However, U. S. engineers point out that power delivered to propel an aircraft is something else, and depends on type of plane, and few of the actual power must be exchanged off to operate equipment (in the aircraft).

F Design Is Factor—For another thing, the purpose for which the plane is designed enters into the calculations. On this basis, the J-39 may be fully as effective as the British engine, although developing more than 500 lbs. less thrust.

On the second point there is the feeling that at that base, in particular, there is probably a great deal of reduction on the part of the Army and Navy to contract for equipment based on British designs, when both the services are emphasizing the need for American aircraft and aerospace industry.

That leads to the conclusion of U. S. observers that what Taylor actually is trying to do is to build

Boeing because of the experience of the British in producing jet engines. There is a strong belief that when the Taylor firm produces engines, these will bear a U. S. not a British name, and that a concerted effort will be made to market the engines as U. S. engines—even though based on British patents.

Radical Dive Brakes Improve Slow-Down

Release of details on the radically new fuselage air brakes of the Douglas AD-3 (formerly BTBD) Skyraider has started a study by engineers who see a possible answer to an old problem: The "slowing down" in mid-air without any changes in the basic impulsion of force on the airplane.

Planes have supplied considerable drive to provide deceleration of the aircraft, but they are generally designed to provide lift. However, their extension is accomplished by positive prying moments that vary with different plane designs and that require fast and accurate trim compensation by the pilot. Dive brakes, even with the performance presented in the Douglas SBD Dauntless, create turbulence that adversely affects wing lift and drag.

By installing retractable flat panels on the left fuselage, Douglas engineers have taken the force required to extend them and created a new and highly effective aircraft control system. Although there may be obvious application it is slowing down dive speed, engineers are trying to determine their usefulness in non-stalling types.

In combination with flaps and slats they may provide an extremely

STRATOSPHERIC 'CHUTE

Designed better to absorb the shock of a jump from extremely high altitude, the "ribless" parachute being demonstrated with by AAF Air Technical Command engineers was originally developed by the Germans for the use of pilots of the jet-prepared ME 262 fighters.

Fast rate deceleration in landing multi-engine transport types increased all-weather flying, made possible by well-developed pitch aids, have placed a premium on piloting technique.

For example, in instrument landing approaches, the danger of over-speeding is more serious than over-speeding. It takes a spot flap instead of dive brakes to bring the aircraft to the front of a vertical point. Postage air brakes might well prove a godsend at such a trying time, slowing the airplane quickly and safely.

The danger of engine failure during takeoff might be lessened considerably through the proper use of fuselage air brakes, which could provide a powerful braking and Ground run after landing could be cut by such an installation.

The simplicity of their design which requires no particular aerodynamic shape or cross-section thereby permitting their being shaped to the desired portion of the airplane, and installation, which requires only hinges and a hydraulic or electric pick, eliminates two of the major objections that plagued most new aviation ideas.



"Bureau Perch" Brakes: In progress with the fuselage bridle project, Douglas Aircraft Co. tried many approaches, of which one of the most unusual was this finger-top, or "bureau perch" installation on a BTBD

PRIVATE FLYING

Aeronca Challenges Piper Lead in Plane Production

Two-place Champion rolling out at 35 a day rate from Middlebury plant while Chief line at Vandalia reaches five a day; Piper recovers from flood.

Aeronca Aircraft Corporation, long a formidable challenger for the first-place lightweight quantity production honor held by Piper Aircraft Corporation, may take the lead soon, if it has not already done so.

A visit to the main Aeronca plant at Middlebury, Ohio last week disclosed that two-place, tandem Champions were rolling out at the rate of 35 a day, while additional assemblies were being put together for final assembly at the Vandalia, Ohio plant, where another line of side-by-side Chiefs had reached the rate of five a day.

Piper, last week, back in production after losing 2½ days because of a Susquehanna River flood at Lock Haven, Pa., was putting toward an intermediate daily production goal of 22 Cessna tandem and four three-place Champs. A third company, the Lippisch Corp., had the two pre-war leading competitor closer run. Engaging a Research Corp., last week was rolling out the three-place Engangs at a little better than 20 a day.

Piper Expansion—Aeronca is still in the middle of a plant addition building program at Middlebury and eventually will set a not too far distant goal of 80 planes a day. But

manufacturing has already shaken down in most departments to a steady flow which bears little resemblance to the pre-war Aeronca 40-a-day schedules.

The story of the post-war Aeronca, for example, requires the pre-war wing, but is made quite differently. The wing ribs, which used to be made out of 60 pieces of wood, each glued and pressed separately, are now one-piece metal stampings, knocked out at a 75-lbs. hydraulic press, as quickly as the press can be operated.

The plane's all-metal door are made of two pieces each, fastened by spot-welding. The wing stiffener uses two wood spars, of laminated spruce, but these are prefabricated by a sub-contractor and ready for use. A sheet of aluminum is wrapped around the front end of the fuselage to form the leading edge and the fabric covering is quickly applied, instead of using the laborious stitching process.

Piper-Like Assembly—A survey of the plant still shows many evidence of hand-labor which are almost inevitable as long as steel-tube and fabric construction is used. But the piping frameworks move on a conveyor line so the welders work, and the plant also shows evi-



Playway Middlebury: Approximately 50 airplanes, at least 40 of which are brand-new Aeronca Champs, ready to be flown away from Middlebury, Ohio, municipal airport, where all planes are currently rolling out at the rate of 35 a day.

ence of careful planning for automatic flow and logical sequence of operations.

The new biplane metal fuselage Aeronca Chief, which uses the bi-control system developed by Fred Weick, and licensed to Aeronca by the Engineering & Research Corp., is expected to be considerably more of a production machine than anything the company has built to date. Most of the human handwork of welding framework for the fuselage will be eliminated and the company expects in turn cut the supporting members of the fuselage by machine work.

The Chief was first displayed to the public recently at the Indianapolis, Ind., Air Show and won a gold in Middlebury's opinion, but no one as yet has been given out by the company, since the first announcement of the design (AVIATION NEWS, March 8, 1945). The company indicates that the present version varies materially from the original specifications and that it may be changed quite a bit more before it goes into production about the first of the year.

Piper "Champ" Speculations—Piper anticipated operations net earning speed 180 mph., top speed at 220 mph., landing speed at 60 mph., rate of climb at 650 ft./min., and range at 470 miles. The design was very much like the Engangs.

When the Lippisch Corp. had used an other two-control plane, the Engangs, the Siegler and the Steinhauer-Hannover, had been replaced by one long vertical fin on the Chief. Many parts were copied from the Siegler, instead of using the laborious stitching process.

Piper-Like Assembly—A survey of the plant still shows many evidence of hand-labor which are almost inevitable as long as steel-

tube and fabric construction is used.

But the piping frameworks move on a conveyor line so the welders work,

and the plant also shows evi-

mand for simplified control and all-metal construction make the Cessna a likely newcomer on the lightplane market. One Aircraft dealer advised his company some months back that he expected to sell many more Cessnas than any other model his company had produced.

The Vansells' plant, in a hangar of the former AAF maintenance center at Dayton's regional airport, is equipped with a railroad spur, a freight elevator, and a 10-ton Aerial Timer which can be bypassed by rail frequently seen from the Vansells plant after they are built at Middlebury. Wings of the planes are quickly assembled with only three major attachment fittings.

Up until now Aerocars has test-flown all its planes before sending them out to its dealers, although later at any time advantage of the new CAA ruling permits manufacturers to send out damaged planes for field assembly and test-flight at the dealer's airport, a spokesman advised.

The gains in production efficiency are expected to be reflected ultimately in lower prices. Frank John Fletcher, Aerocar's president, "hopes" that within two or three years the price for a plane comparable to the Champion can be reduced from its current level of \$2,250 to around \$1,750. "When we really lay our stride we'll do a lot better than that," he said.

Briefing For Private Flying

AL BENNETT'S AIRSTRIP—a little-hailed but practical demonstration of the utility of the lightplane as a commuter's vehicle is concluded with the move of Al Bennett, from Aerocar's home plant at Middlebury, Ohio, where he has been sales director for the past two years, to New York where he becomes Aerocar distributor for the metropolitan New York area and some surrounding counties. During most of his stay in York, Bennett has been living the life of a country squire, on a little farm about 10 miles west of the Middlebury, Ohio, airport where the Aerocar plant is located. And he has been commuting by lightplane almost daily between his home and plant, in less time and effort than would be consumed in virtually any other means of transportation. He even flew home for holidays when he felt so inclined.

BETWEEN BARS AND IRON—With Bennett at the controls of a new Aerocar "Champion," we made our first and probably last visit to his home landing-strip last week. The strip is about 1,900 ft. long and about 50 ft. wide at its narrowest point, between a barn and tree. We wouldn't recommend it, and we feel sure CAA wouldn't either, for the average lightplane pilot, but Bennett has been flying lightplanes for a long time, and made his landings and takeoffs in the strip's narrow confines with ease. Use of the place for commuting left the Bennett family out for him's use, and has eliminated need for two cars.

SPEEDWAY FLYERS—Hoover-Parks Airport, three-quarters of a mile from the Indianapolis Speedway, did a record business on May 21, as a result of private flyers coming in to see the 500-mile race, Douglas C. Fletcher, manager, reports. A total of 360 planes, whose owners attended the race, were accommodated during the day, and left before sunset, with 285 planes taking off from the 100-acre part in one period of an hour and 40 minutes, in the late afternoon. A temporary control tower was set up for the heavy traffic. A staff of 12 men handled the servicing and traffic, and saw a plane ushered in much as a jockey mounted wingtip during the day at the Indianapolis base of Purvis Aircraft Sales and Service, Fletcher reported. The total of 160 was more than twice the number of private planes which flew into Indianapolis Municipal airport for the races, and several times more than the number visiting any other private flyers' field, Fletcher said, and, due to the convenient location of Hoover-Parks Field to the Speedway.

ARGONIA'S TAXI STRIP—One small Kansas town, Argonia, has solved the problem of transportation from the local airport to the heart of the business district for flying tourists, shoppers and other plane users. One street, leading directly from the airport west is the downtown district has been set aside for use as a "flying taxi" for the planes which owners are employing their own personal planes or gliders. While the idea was originally proposed by a number of small towns, whose idea was closer to the business district, it offers interesting possibilities to many of the small American communities which depend on the surrounding farmers for much of their trade. Potentially the arrangement could be made effective by police traffic officers once or twice a week, at the times when the greatest flying field traffic was expected, if it was not desirable to block the street to traffic and other surface vehicles at all times. Such an arrangement on any large scale would give added protection to the piloting of personal aircraft by greater safeguarding of propellers, preferably by a positive arrangement, either with a ring safety guard, or a suitable arrangement which would protect the passer-by as compared to other vehicles.

FISHERMAN'S AIRRAVEN—Sportsman's Flying Service recently dedicated its new Cessna 140 airport in the heart of the trees, hills and pine forest area on Middlebury's well-worn between Alfred and Chapell, and 22 minutes north of Mea. The 1,600 ft. north-south runway, and 2,300 ft. northeast-southwest runway, all with clear approaches. Cabins are available for air tourists with transportation provided between cabin, restaurant and flying field. Tie-downs are provided. The service is headed by Bob Deleau, president, and George Both, secretary-treasurer and manager.

—Alexander Midkiff

Stampede Rider—One-piece stamped-out aluminum ride in the form of a new American Cessna 140 and Cessna, two types of the popular aircraft, are versions when the Martinair, Oregon plant has made since pre-war days. As late as August, 1940, wood windshields made of 80 pieces hitherto assembled in a jag and glued under pressure, were used, by Aerocars in its planes.

Rocket Boost Forecast For Lightplane Use

Aerocar engineering studies determine possible applications for private planes.

Widespread use of small rocket auxiliary motors to supplement conventional powerplants on personal planes and to lift gliders and amphibians up to soaring altitudes is forecast as the result of recent engineering studies by Aerocar Engineering Corp. (General Tire & Rubber Co. affiliate), Akron, Calif.

The manufacturer, which plans to produce 5,000 units for shorted transits by army and navy planes during World War II, has previously announced modular units for commercial transports, DC-3 type and larger.

For Tandem Power—For powered light aircraft, engineering studies indicate principal applications will be the use of rocket motor to augment thrust from engine-propeller or piston, enabling the aircraft to takeoff from any field or body of water at any altitude at which the strength and load safety factor of the auxiliary motor for safety of the auxiliary motor for safety in event of engine failure would reduce to the water takeoff run to 300 ft. on the base of the aircraft analysis.

As an emergency power source in event of engine failure, the rocket motor would add considerable safety margin for the single-engine lightplane, and might well eliminate the need for a second conventional engine.

For Gliders and Amphibians—As described, a power source providing 300 lbs. thrust for 24 seconds, would give the glider a rate of climb of 3,000 ft./min. This would enable the plane to attain an altitude of approximately 1,000 ft. or including a margin for errors in pilot technique and variations in runway surface, of 1,000 ft.

Small rocket motors have already been successfully used by the Los Angeles Aviation Dept., Aerocar's 1941 team of the amateur rocket principle held valid for four years (Aviation News, June 18, 1945). Use of a rocket motor as an emergency power source for a lightplane was recommended in the personal plane division of Thomas Mississ. Engineering & Research Corp., Inc., (Aviation News, June 17, 1945) although the Nasavtop plane has never been built.

An Aerocar motor Model 1B-A-1800 D-1 which provides 3,000 lbs. thrust for 12 seconds, weighs 300



Self-Launch Rocket Takeoff—Use of rocket-assist for takeoff of gliders and amphibians is expected by Aerocar Engineering Corp. to lift soaring enthusiasts to their required altitude at the rate of 3,000 ft./min., shortening the tedious walk, auto or airplane taxiing. Also the rocket unit would appear, attached to a glider for takeoff, is shown is the artist's sketch.

feet above the ground. The Aerocar auxiliary motor would make it possible for the pilot to takeoff from any water surface on which he could land, the manufacturer states.

Used as a four-place Republic Seabee amphibian, one of the most widely-known postwar personal planes currently on the market, the aircraft's motor would have a similar effect on takeoff. Currently, Republic lists the plane's water takeoff run as 1,800 ft. and its water landing run at 1,100 ft. Presumably the boost of the rocket motor would reduce to the water takeoff run to 300 ft. on the base of the aircraft analysis.

As an emergency power source in event of engine failure, the rocket motor would add considerable safety margin for the single-engine lightplane, and might well eliminate the need for a second conventional engine.

For Helicopters—On a seaplane, as described, a power source providing 300 lbs. thrust for 24 seconds, would give the glider a rate of climb of 3,000 ft./min. This would enable the plane to attain an altitude of approximately 1,000 ft. or including a margin for errors in pilot technique and variations in runway surface, of 1,000 ft.

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The helicopter was flown to Toledo by Fred W. Carlson, Bell chief test pilot, for tests with modified nose detection instruments at the Bell-Helicopter Aircraft plant. Following the tests the serial "president" party left for northern Canada, with helicopter, planes and trucks.

Huge limestone mining engineers are engaged in the clearing of green which is exposed in not just the helicopter with the magnetic detector, as happens over areas where valuable mineral deposits are believed to lie, in addition to locate the deposits more precisely.

Pacific Pilots, Inc., Has Unique Flying Service

Fine plan developed to make profits selling low cost flights to private flyers.

Pacific Pilots, Inc., organized by Robert Pike (photo), president, is setting a new trend for low-cost flight instruction in the Los Angeles area, by advertising by radio and streetcar cards for students to "Learn to Fly for \$15 per month."

Pike is convinced that the non-flier who puts in eight hours of instruction in the first month, up to solo, will then continue his interest in the \$100-a-month Pacific Pilots "annual membership" because it offers all advantages of personal flight instruction but eliminates monthly dues.

In effect, Pike offers members a 30 percent discount from average rates for small plane rentals on the west coast. This is done through distribution of franchises to a number of operators, who have agreed to the arrangement because of advantages awaiting them.

The operator advantages are a steady flow of primary students who can reasonably be expected to become steady rental customers.



SWIFT 125 CERTIFIED:

With CAA certificants accepted for the 125-hp model of the Globe Swift two-place all-metal personal plane, production of the plane at Ft. Worth, Texas, will be started next year. Known as Model GC-1B, the new version shows considerably improvement in performance over the 35-hp model now in production. The 125-hp Continental-powered plane flies with a maximum speed of 120 mph; performance 120 mph, top speed 140 mph; cruising speed, 65 mph; landing speed, 22 miles per hour; R/T rate of climb, 600 ft. to 10,000 ft.; ceiling, 18,000 ft. Weight of the GC-1B is said to be 4,000 pounds. Ft. Worth.

Elimination of advertising and direct selling costs, both borne by Pacific Pilots.

Pacific Pilots will provide the operator with light planes or a service of \$1 per hour and maintain the equipment in racks ready for 100 hours for a pilot's convenience.

The operator pays insurance costs, currently quoted by Pacific Pilots at 40 cents an hour to cover \$25,000 property damage, \$30,000 per passenger, and \$50,000 public liability.

To the flyer the \$150 membership at Pacific Pilots is made attractive in comparison with private plane ownership costs of today, by a variety of benefits:

• An initial eight hours of dual instruction.

• Home study ground school lessons.

• The privilege of extended membership if the full 100 hours of flying time at 30 percent discount has not been completed within the year.

• Five hours of Link training.

• Night flying at no extra cost.

• Instruction flying at no extra cost.

• Instruction for amateur radio operator's license.

• Manuals for CAA pilot license.

• Cross-country flight privileges based upon the rental of a franchise operator's plane for \$5 a day plus \$5.50 per hour flying time.

Now beginning the appointment of franchise operators, Pacific Pilots has had approximately one year of experimental operation for the testing of rate structures and operating methods. The company holds units

lease San Fernando Airport, in San Fernando Valley, and is a lessee operator at Glendale Valley Airport, where maintenance of rental exchange airplanes will be done.

Initially, franchise agreements are being sought with operators of airports at Fresno, Bakersfield, Santa Ana, Riverside, San Bernardino, and San Diego. A franchise already has been signed to two former Army Air Corps instructors operating at Ontario Airport, C. V. Dunnell and Darrelleigh Hedges.

Currently Pacific Pilots owns eight Taylorcraft, and four Aerocars.

New Lightplane Floats Developed From Glass

New Lightplane floats developed by the Heath Company, Herkimer Harbor, Mich., are believed to be the first use of glass plastic materials in the lightplane field for float use. The material is similar to that used in the new experimental glass plastic materials recently announced by Wilson S. Stoddard, Detroit engineer, and in the glass plastic fuselage of an Army trainer (BT-18) used at Wright Field.

The Heath floats which are expected to be marketed for approximately one-third less than comparable all-metal floats, are described as superior to wood, requiring no finishing with fresh water after salt water use.

Other advantages cited include taking up less room, reducing weight and cost obtained from eliminating alignment ambitions, lighter weight than comparable metal floats, mirror-smooth surface and no floats, for greater aerodynamics and hydrodynamic efficiency, bottom section replaceable, by use of screwdriver, at relatively low cost. A 10-in. walk covered with non-skid material is provided on top of the floats.

It is understood that a number of the lightplane manufacturers are investigating the possibility of having their planes certificated with the Heath floats.

The glass plastic material is the creation of many materials engineers, but a practical solution to the long-drawn-out question of plastic planes. The success of the Heath floats will be watched by the industry, as a possible forerunner to experimental development of a complete glass plastic personal plane, with pure monocoque fuselage and wings with a minimum of internal bracing.

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FINANCIAL

Airline Expansion Induces Waves of Stock Offerings

Public financing of non-scheduled carriers listed as makes good its speculative losses; National Skyway stock is steep from selling price.

The offering of \$90,000 shares of common stock of U.S. Airlines, Inc. represents the largest public financing by a non-scheduled air carrier.

Gross proceeds should aggregate some \$350,000 and may exceed the \$250,000 obtained from the public by National Skyways Freight Corp. in April, last year.

The corporation's comprehend air service was bound to bring in at least a wave of public stock offerings. There have been a number of significant issues in recent months with more in the offing. Under present market conditions, it has not been difficult to obtain financing for this less-than-situated industry. It is too early to evaluate the effect of the CAB's new non-scheduled regulations, but some of the speculative fervor may be curbed.

Speculative Mind:—The prospective entrepreneurs the stock flotation of each of these issues clearly state the term: "This is a speculative security." The public is in a position to invest in these stocks, even away by the possibility of any serious setback. Recently an investment banker testified that what would be no problem to finance a proposed frontier operation.

Mostly, play the word "Aviation" in the corporate name, and the stock issue will be readily sold, he stated.

The accompanying table shows the known public financing of non-scheduled air carriers. The first issue sold was that of Express Air Inter-American, B. A., in May, 1948. This company is not entirely a non-scheduled carrier, but it did have a franchise from the Commerce Department to operate as that carrier. A total of \$90,000 shares were sold about a year ago at \$16 per share to the public.

At that time, the issue was heavily over-subscribed and went to a previous investors. This was a condition prevalent with most new issues in semi-supply. The current

sight that the size of the issue was too much for the market to absorb. Up to that time, this represented the largest number of shares and the greatest amount in dollars of a non-scheduled stock offering.

Warren Feature:—The U. S. Airlines, Inc. stock has calls option to a future price in virtually every non-scheduled public security offering. Provision is made for the issuance of an additional 300,000 shares, upon the exercise of warrants, and the stock is to be issued at the cost of \$100,000 to H. W. Pfleider, president of U. S. Airlines, and the remaining \$160,000 to warriorees to the underwriters. The cost is one cent per warrant.

These warrants are exercisable at \$3.25 per share at any time after July 1, 1960 through July 1, 1981. In other words, the holders of these warrants have a call on stock for a five-year period. During this time, for example, the shares should attain a price of about \$10.50. Pfleider and the underwriters can each realize a gross profit of more than a million dollars.

It is also issuance of warrants of options which provide substantial opportunities profits to the promoters and underwriters of these non-scheduled carriers. Of course, these enterprises have no assurance of success and the holders of the warrants or options are taking a speculative gamble. Nevertheless, such gamble is far less than that assumed by the public purchasing the actual stock at the offering price.

There are at least some 350 non-scheduled air carriers of varying size in existence. Out of the survivors of this group, well come a substantial additional number of public stock (4,200).

Partial Stock Offerings Non-Scheduled Air Carriers

Date	Company	Price Per Share			General Offer Price Per Share
		Issue	To Offer Price	Gen. Offer Price	
May 1, 1948	Air Liner Transport Corp.	\$100,000	\$1.00	\$1.00	\$100,000
Sept. 1, 1948	Express Freight Corp.	15,000	5.00	4.00	250,000
Sept. 1, 1948	Express Air Inter-American	30,000	2.00	1.80	300,000
April 1, 1949	Transair Air Service, Inc.	120,000	2.00	1.75	275,000
June 1, 1949	Flight Freight Corp.	200,000	2.00	1.80	1,000,000
July 1, 1949	Globe Cities Airways, Inc.	120,000	2.00	1.80	210,000
Sept. 1, 1949	Inter-American Aviation, Inc.	300,000	2.00	1.80	300,000
May 1, 1950	Sabre Air Freight, Inc.	10,000	2.00	1.75	100,000
March 1, 1951	Delta Airlines, Inc.	150,000	3.00	2.00	200,000
Sept. 1, 1951	Transair Air Service, Inc.	300,000	2.00	1.80	200,000
Sept. 1, 1951	National Skyways Freight Corp.	50,000	4.00	3.00	100,000
Sept. 1, 1951	Delta Airlines, Inc.	75,000	2.00	1.80	200,000
June 1, 1952	S. S. Airlines, Inc.	90,000	3.00	2.75	100,000

Conversion of one-half of 100,000 outstanding preferred and 200,000 common stock
Original Offering Price.

TRANSPORT

Vast Feeder Network Is Seen As Result of CAB Decisions

35,000 route miles covering 42 states and 25 new local carriers expected when final case decided.

By CHARLES L. ADAMS

Twenty-five thousand route miles of interline service covering 42 states and the District of Columbia are in prospect for the nation after CAB has handed down its final decision in 21 route proceedings, last of which is scheduled for hearing July 22.

Analysis of the Board's first three opinions in regional cases, taken with examiner's recommendations to four other proceedings and public carriers' briefs in three more, lead to the conclusion that close to 25 new local carriers will be authorized.

Six of those already have been certified for three years in the Rocky Mountain area, six at the West Coast and six in Florida. The average system gathered routes averaging more than 1,000 route miles each between 17 separate points. An average, 163 different combinations are included on the system of the first six area feeders. Of these, 70 points never before received service from a certificated airline.

Examiner Reports Conservatism—Examiners' recommendations in the early cases were marked by conservatism, completely absent from the recent reports on the Texas-Oklahoma and Southeastern areas. In these two alone, examiners have favored certification of eight new feeders.

Recommendations in the New England case, which will be decided by CAB shortly, call for one new feeder and in the North Central proceeding two more. That makes 17 total services already authorized or recommended in seven regions.

A complete map-analysis of the nation, both topographically and economically, is included in these cases, supporting the conclusions well documented and recommendations already fully reflect the final picture.

Twa Far Atlantic—The Middle Atlantic area was considered one of the least likely to show need for new feeders. But a public comment?

brief recommends certification of two local services by Hudson Airlines, Inc., New York City, and Maryland Airlines, Inc., Baltimore, Md., and favors extensive expansion of All American Aviators' package routes and certification of Air Commuter, Inc., New York City, for shuttle operations to the five largest nearby airports and a connecting service between New York and 27 existing communities.

Only one series of major size has been passed over in the board's work thus far developing a transcon. More recently, North Dakota, South Dakota and Nebraska, Iowa here, while CAB may go beyond examiner's recommendations to give the comparatively small towns in

CARGO DOOR CHANGE

United Air Lines is doubling the width of the doors on its cargo DC-7s, as seen above. A new doorframe was designed, built to equalize areas, adding about 40 ft. to the width of each plane. New ships are being modified at the firm's Chicago base.

the region a chance to prove the existence of sufficient feeder traffic potential. Three state states, Maine, Vermont and Montana have not been recommended for feeder service in cases already heard.

In aggressive language, the new local routes will be far easier than those already operating in the nation's air pattern. However, the more than 480 combinations on feeder systems would far exceed the 227 unduplicated cities receiving airline service from certificate domestic carriers in April of this year.

Stand Two Year Test—Whether the nation's feeder network is reasonably practical probably will not be known for at least two years. CAB heard at the industry in the opinion that CAB is now setting up large numbers of feed carriers which soon will be crowding readily to additional routes and exceptions from certificate provisions to permit through service.

Some observers believe the feeders will hold their own without heavy subsidy in prosperous years but will experience financial difficulties drying up of traffic during depression periods.

CAB agrees with the examiner's view that cost factors proposed by feeder applicants are often extravagantly optimistic. They point, however, to the past record of bankruptcies which have not been helpful in presenting real views of proposed new operations.

Increased equipment costs, higher



TWA "CHORE BOY":

Designed by TWA for ground personnel of its Constellations, this 2,000 lb mobile unit combines for the first time fire protection, water supply and electrical power to examine. One man operates the unit, which is powered by a gasoline engine. TWA says it saves two men's time and eliminates two pieces of ground equipment.



CARGO DOOR CHANGE

United Air Lines is doubling the width of the doors on its cargo DC-7s, as seen above. A new doorframe was designed, built to equalize areas, adding about 40 ft. to the width of each plane. New ships are being modified at the firm's Chicago base.

wages, over-expenses and operation of systems considerably smaller than those applied for probably will make catastrophic many exhibit estimates to feeder applicants. Requests for mail pay between 25 and 50 cents a mile are expected to predominate when CAB undertakes to fix compensation.

ATA Assails Pilots' Shorter-Flight Request

Broads ALPA proposal for 7-hour flights as "Basic Pay For Less Work" policy

More pay for less work, rather than safety considerations, is seen by the Air Transport Association in the moves behind the Air Line Pilots Association's recent request that CAB reduce present eight hr.-per-day flight time limitation to seven hours. ATA, at its latest meeting, rejected a proposal by the Board of Governors to re-examine relationships between maximum hours of duty and air carrier safety (AVIATION NEWS, May 14), again insisting CAB to be alert against "deteriorating" in the industry.

The airlines also criticized ALPA for opposing incorporation of Part 41 provisions into Part 61 of the Civil Air Regulations. The change would permit domestic carriers to schedule flights for a maximum of 11 instead of eight hours of a flight crew member unless the two pilots ALPA had contended to CAB that Part 41, governing domestic operations, is a health-concerned regulation and that its section prohibiting a third crew crew to be scheduled for 12 hours would be placed in Part 61, which applies to domestic carriers.

Domestic flights over eight hours should be permitted only if the amended regulation specifically requires that another qualified first pilot be included as the third crew member, ALPA insisted.

PFTA Counter—ATA countered that flight time provisions of Part 41 were based on more extensive experience than similar sections in Part 61, adding that the equipment used and the route traversed might require that the third crew member be a minimum required to safely operate aircraft under normal pilot

The carriers also argue with ALPA's view that flights crossing at 300 mph on new high-speed planes would prove more fatiguing on pilots than the 154-180 mph speeds of pre-war transport equipment. Medical reasons have forced ATA and, that speed of secon-

der and deceleration create bodily strain, but speed through space in itself has no effect on the working man does not support added fatigue claims.

16-Block—Last week's move for a Civil Air Regulation placing in effect an overall limit on flying during of 12 hours was strongly opposed by ATA. At present the airline voluntarily observes an on-duty maximum of 16 hours, and ATA said a lid of less than 14 hours in any 24-hour period would involve serious disadvantages to the public, airline management and the pilots themselves.

In actual practice, ATA claimed, pilots would spend more time away from home (4 to 6 days in length) under the 12-hour limitation than under the 14-hour arrangement because of the more frequent necessity for "dead-heading" back to their bases.

ATA declared the shorter limitation can not be shared by smaller carriers because it has shown them the safety's prerogative to refuse to fly if they do not feel physically fit.

Domestic Lines Lose

Twenty domestic air carriers, including AB American Aviation, Caribbean-American Airlines and Hawaiian Airlines, suffered a net operating loss of \$1,253,400 during the first month of 1946, compared with a net profit of \$1,479,133 in January, 1945.

Complete reports filed with CAB, which just released the figures, show revenue totals have increased from 13,682,415 in January, 1945, to 20,287,656 in January 1946, but

operating expenses jumped from \$11,536,333 to \$18,845,854. Passenger traffic, up 30 percent, was down from \$12,831,039 to \$15,291,176, while income dropped from \$12,605,826 to \$12,832,387, and expense and freight from \$14,564 to \$15,237.

Northwest Airlines Orders 40 Martin 303's

Second engine order for 300-engines Martin 303's has gone to the Glenn L. Martin Co. from Northwest Airlines, which is buying 40 of the twin-engine ships at a cost over \$10,000,000.

Earlier this year United Air Lines announced it was purchasing 33 of the 303's at about \$9,600,000, with option to buy 15 more Canadian Snow, Jan. 23.

The 303 differs from Martin's Model 202, which several of the airline's 200 aircraft are based on. Its cabin will be pressurized and will accommodate 40 passengers. The larger-powered engines will be expected with exhaust jets to increase its speed. Cruising speed for the 303 will be about 270 mph, about 300 for the 403.

Northwest expects to put its first 303 into service next summer, and have all 40 flying by the end of May, 1948. Eventually, says Glenn L. Martin, SIAA president and general manager, these ships are expected to replace Northwest's DC-3s and DC-4s.

Announcement of the 303 purchase follows by less than three months the company's order for 30



Northwest Orders Martin 303's. Cutaway drawing shows seating arrangement in Martin 303, of which Northwest Airlines recently purchased 40 at a cost of more than \$10,000,000. Passenger capacity is 24-32 in the reclining seats and six in the lounge. (Northwest Airlines drawing.)

Basing Stratocruisers for \$15,000. The Martin planes will be used to feed passengers to stopovers points for the bigger stage.

Northwest engineers say, pre-negotiation of the 300 cabin will make it possible to provide a 10,000-ft. cabin altitude when the plane is at 16,000 ft. With a passenger capacity of 88 each, the Martins will give NWA 1,320 seats, or more than double its present DC-3 and DC-4 capacity.

Frost and rain down, the latter with integral heating system, will speed passenger handling.

PICAO Air Freedom Deadlock Is Unbroken

Chief progress in technical field so season ends. Mutual Aid program begins.

MONTRÉAL (Special)—The first Assembly of the Provisional International Civil Aviation Organization was a success, according with policy established by a series of presidents relating to international civil aviation, but with the controversial commercial rights or "fifth freedom" question still not nearer solution.

Chief progress was made in the technical field, and PICAO now has the tools to go about building adequate air navigational facilities wherever needed by world airfares.

The final meeting of the Assembly made the organization the trustee for arranging financing of necessary equipment where the nations in which such facilities may be located are unable to afford the cost, and is aimed at no particular sovereignty mark as the high aim.

Principled immediate problem is

the putting into operation of weather stations across the North Atlantic. A total of 12 vessels is considered the minimum need. Yearly upkeep cost is more than half a million dollars each.

PICAO's natural aid programs also will be moved to oil Greece in establishing its auxiliary Athens airport gateway from Europe to the Far East, was largely destroyed by the German occupation, and the Greek Government already has sought PICAO's assistance.

In the final days of the assembly meeting, PICAO chose Montreal as seat of the permanent organization, and gave up use of Rome's parking. The 21st seat on the Executive Council, previously left vacant as a token of opposition to the Soviet, was given to the Argentine last night after being proposed by her own delegate.

Committee Counters ALPA Pay Points

Frye charges union leaders include in pay philosophy price representatives of their dues.

Another counter-argument to the ALPA higher-pay claim was presented at least another week. Thereafter, the three-man New York panel will study the evidence, in preparation for a report July 7.

E. J. Whittley, of NWA, submitted a memorandum prepared by the Airlines Negotiating Committee, ranging practices in other fields. Pay of cargo steamer masters, he said, is raised from \$468 up to \$500, depending on increased weight of a vessel up to 17,000 tons. Truck drivers who were brought out, get 12.3% as raises for as much as a 68% weight advance in trucks.

Handled. Locomotive engineers earn up to 14% more for a 6.6% up in the weight category.

Since the Postmaster was a standard when decision 33 was first effective, Whittley pointed to a salary increase of 35% over maximum, as weight of transports rose 2.88%.

High point of the week's testimony was a charge by TWA's Jack Frye that ALPA leadership is impeding technological advances. Off the record of the hearing, ALPA representatives vaguely denied that. Said Frye: "Since the end of the year, we have suffered some pretty extenuating circumstances, and we found it necessary to secure a \$10-million credit of \$10,000,000. We were almost prevented from getting that credit due to the [international] strike. In fact, until the Presidential Board was appointed, Reparable Life Assurance refused to sign the agreement."

Linson, he continued, was almost caused by pilots refusal to bid (volunteer) on flying of 4-engine equipment overseas when TWA was awarded the international routes. The line had to order junior pilots to take over, said Frye.

\$54,000,000 Mail Pay For 1947 Is Approved

House-passed allocation of \$60,000,000 for domestic airmail and \$3,000,000 for foreign airmail service for the coming year were approved by the Senate Appropriations Committee in reporting out the fiscal 1947 Post Office Department bill.

The airmail committee compared with estimated expenditures of \$53,250,000 for domestic airmail and \$4,500,000 for foreign airmail during the present fiscal year.

The \$60,000,000 for domestic airmail—\$1,000,000 below the Budget Bureau proposal—and the \$3,000,000 for foreign airmail cannot be taken as an accurate indication of the actual amount to be spent for airmail services during the coming year. Post Office Department requests Congress for bare minimum airmail allocation in the regular appropriation bill, then requests additional appropriations as development requires.

The \$60,000,000 for foreign airmail is regarded as a "taken" appropriation to provide the Post Office with working capital for foreign airmail contracts until international airmail rates are set by CAB and negotiations for foreign airmail service can be more accurately calculated.

Post Office officials reported that the largest outlays from the \$60,000,000 will be \$5,184,334 for airmail service over Pan American's Miami-Brownsville and New Orleans-Cuba routes and South America route; \$27,677 for PAACO Seattle-Fairbanks route; \$15,856 for PAACO North Atlantic route; \$106,093 for services on military planes; and \$111,673 for services over American Overseas' South Atlantic route. An allocation is intended for service on TWA's North Atlantic route.

New BOAC Deal

SANTIAGO, Chile (McGraw-Hill World News)—Agreement in principle to establishment of a British-London air service by BOAC has been reached and details are being worked out through diplomatic channels. Britain has offered Chile reciprocal rights for the establishment of continental services to England.

CAB SCHEDULE

- June 15. Consideration of article to revise regulations of Federal Air Mail and Post Air Mail and Postmaster General.
- July 1. Protection against air raids and other emergency measures by the Air Force of TWA. (Budget, \$100,000.)
- June 19. Schedule for Xmas application for aeronautical publications.
- June 21. Hearing on route extension applications for aeronautical publications. (Budget, \$100,000.)
- June 24. Hearing on route extension applications for airmail services. (Budget, \$100,000.)
- June 25. Route extension applications for airmail services. (Budget, \$100,000.)
- June 26. Route extension applications for airmail services. (Budget, \$100,000.)
- June 27. Route extension applications for airmail services. (Budget, \$100,000.)
- June 28. Extended routes and airmail services under aeronautical publications.
- July 1. Extension of authority to administer airmail services. (Budget, \$100,000.)
- July 2. Route extension applications for airmail services. (Budget, \$100,000.)
- July 3. Route extension applications for airmail services. (Budget, \$100,000.)
- July 4. Route extension applications for airmail services. (Budget, \$100,000.)
- Aug. 1. Route extension applications for airmail services. (Budget, \$100,000.)
- Aug. 2. Route extension applications for airmail services. (Budget, \$100,000.)
- Aug. 3. Route extension applications for airmail services. (Budget, \$100,000.)
- Aug. 4. Route extension applications for airmail services. (Budget, \$100,000.)
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- Aug. 30. Route extension applications for airmail services. (Budget, \$100,000.)
- Aug. 31. Route extension applications for airmail services. (Budget, \$100,000.)

CAB ACTION

- Approved April 22, 1947. Long distance telephone and telegraph rates for airmail services between the United States and Canada were fixed at 10 cents per minute. (Budget, \$100,000.)
- Approved April 23, 1947. Postmaster General authorized airmail services between Boston and Philadelphia, and between Boston and New Haven.
- Approved April 24, 1947. Postmaster General authorized airmail services between Boston and New Haven.
- Approved April 25, 1947. Postmaster General authorized airmail services between Boston and New Haven.
- Approved April 26, 1947. Postmaster General authorized airmail services between Boston and New Haven.
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- Approved Jan. 4, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 5, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 6, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 7, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 8, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 9, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 10, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 11, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 12, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 13, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 14, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 15, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 16, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 17, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 18, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 19, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 20, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 21, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 22, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 23, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 24, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 25, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 26, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 27, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 28, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 29, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 30, 1948. Postmaster General authorized airmail services between Boston and New Haven.
- Approved Jan. 31, 1948

More Steamship Firm Strengthen Sea-Air Ranks

The Sea-Air Committee of the National Federation of American Shipping, probing for a show-down fight for participation in ocean air transportation, has announced two new members, United States Lines and American Presidents Lines. While neither of these companies has an air carrier affiliation, their

CAR then presence on the Committee strengthens the group by rounding out an almost solid representation of American flag steamship lines. Resolution of surface carriers from overseas air transport in CAR's Latin American Commission, with consequent changes in proposed policy, is slated for the Board's policy as expected to have the Committee's main attention toward achievement of its objectives through Congressional action.

Pilot Adds Planes

LIMA, Peru (McGraw-Hill World News)—Five Douglas DC-3s have been delivered to the Eastern Co. for use in stem-and-motorization of U.S. Peruvian originally ordered for U.S. Army transport service; the planes were new units from assembly, sold as surplus.

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stricted, the load can't be compressed
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SHORTLINES

► America has opened a new international ticket office at 34 West 49th St., Rockefeller Center, New York. Licenses for transocean flights issued from this address. The line average rate for 1948 was \$1,000 per passenger a day out of Los Angeles during April. Total was \$6,965.

► Brazil is negotiating an airline or freight agreement with United similar to that which goes in effect June 20 with TWA. . . . Commercial airline passengers in 1948 increased 73 percent over 1947, while revenue was up 40 percent last year. Net profit before income taxes was \$17,000 against \$20,000 for April last year.

► Northwest will pay a 50 cent per share dividend on common stock July 1, 1949, in lieu of record date May 21, a total of \$87,500.

► Pan American passenger rates totaled \$20,317,280 in the 1948 first quarter, an increase of nearly \$8 million over the same period last year. Air cargo shipments were 200 percent above 1947. First quarter tonnage was 71,000 lbs. In 1947, passenger revenues were increased and tonnages were up.

► British BEA recently made its first commercial flight from Memphis to Indianapolis with a charter load of Firestone sales contest winners. Delta has had a semi-annual dividend of \$10 cents per share on all regular stocks since May 1947.

► Eastern Airlines is expanding its service over 36 radio stations in 17 states cities on its routes. . . . The carrier has established its building at 16 Rockefeller Plaza, New York, with three large rooms, each covering more than 50 sq. yds. These in section of continents by air travel.

► Mid-Continent lines will begin an express mailer shipment when 3,635 letter posts were carried during week of April 4 from Washington, D.C., to New Orleans for delivery in Mexico City and Mexico. Mid-Continent's revenue was \$12,000 in April and 73 percent over 1947, while revenue was up 40 percent last year. Net profit before income taxes was \$17,000 against \$20,000 for April last year.

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► PAA expenses to have been \$3,600-
odd daily capacity excess than double
January 1, 1948. DC-4s and Martin
307s have well gone into service now
and will have four-blade, reversible
Holland Standard propellers. . . . Re-
cent acquisition of a Boeing 307
from Pan American. It has been
repaired, and other parts that
will be used in the new Boeing
are being purchased, are two steps that
will be taken. President Roosevelt
to Teheran and Casablanca. . . . PAA's
general offices in Chicago have been
moved from the Field Building to
23 West Washington St. Operations
and maintenance units move to a new
hangar at Chicago's airport.

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Now or Never

SOME NON-SCHEDULED operators are displaying symptoms of panic over CAB's regulatory plans for the industry at the very time they should be acting for their own common cause. They must achieve this unity now or never.

The Civil Aeronautics Board in the past has given time after time that it has an express interest in the problems of industry, and has repeatedly shown a give and take attitude to an extent seldom experienced in other Federal aviation agencies. This interest in the problems of the aviation business has been most evident in generous time limits set for industry to make up its mind, and the number of changes it has made in the final regulations to meet the most urgent needs of industry.

It is absolutely necessary, therefore, that the non-scheduled operators make their united views known to

CAB in the proposed amended exemption order which is now being circulated for industry comment. While the Board's definition of non-scheduled service laid down very restrictive limits, this definition will to a large extent be superseded by the amendment to the exemption order which, as it is present form, limits operators to no more than 10 round trips a month between any two points.

That is the battleground on which the operators have the opportunity to fight for their future. Their comments are due at CAB by July 22. The Board's statement showed a willingness to consider the operators' views in regard to the setting of a fair frequency limit.

Operators will have only themselves to blame should the Board, lacking comprehensive contrary views, revise the present limit.

Are We Neglecting The Missile?

PROMINENTLY THE MOST surprising trend noted at the recent Air Materiel Command press conference at Wright Field, Ohio, was the constant emphasis on future piloted military aircraft by top AAF research and development heads, overshadowing the stand-by-for-the-future of the guided missile.

In contrast to the writing of many so-called military experts in recent months, Maj. Gen. Curtis LeMay, Assistant Chief of Air Staff for Research & Development, told the press group: "The new weapon, the long-range missiles, are not available now, will not be for some time, and perhaps never if we do not get sufficient research funds." He described piloted aircraft as "weapons for immediate use until the long range missiles are ready."

It is safe to assume that the AAF was keeping the lid on its best secrets, despite the frank discussions and display of much hitherto secret equipment.

Yet the disquieting impression prevailed that the AAF development chiefs were putting most of their chips on the immediate development of faster and

better armed piloted craft, while they carried on guided missile development with their left hand.

Some critics of the Army's air research program during the war have assumed that the "old school" AAF officers, many of them pilots, are prejudiced against this strange interloper, the pilotless missile.

After the German developments of the V-1 and V-2 bombs/bomber, American interest in this form of combat was, albeit belatedly, obviously more keen. But nearly two years after the V-2 appeared, the military scientists of this country have not yet announced anything better, and are still making tests with the German missile, although it is known that a few development of piloted planes, but on long-range missiles.

If military aviation research in this country is not benefiting from the lesson of World War II, and is not putting forth strong efforts not only toward development of piloted planes, but on long-range missiles and pilotless interceptors as well, but by our progressive aircraft industry, a revision in our air development planning is desperately needed.

ROBERT H. WOOD



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